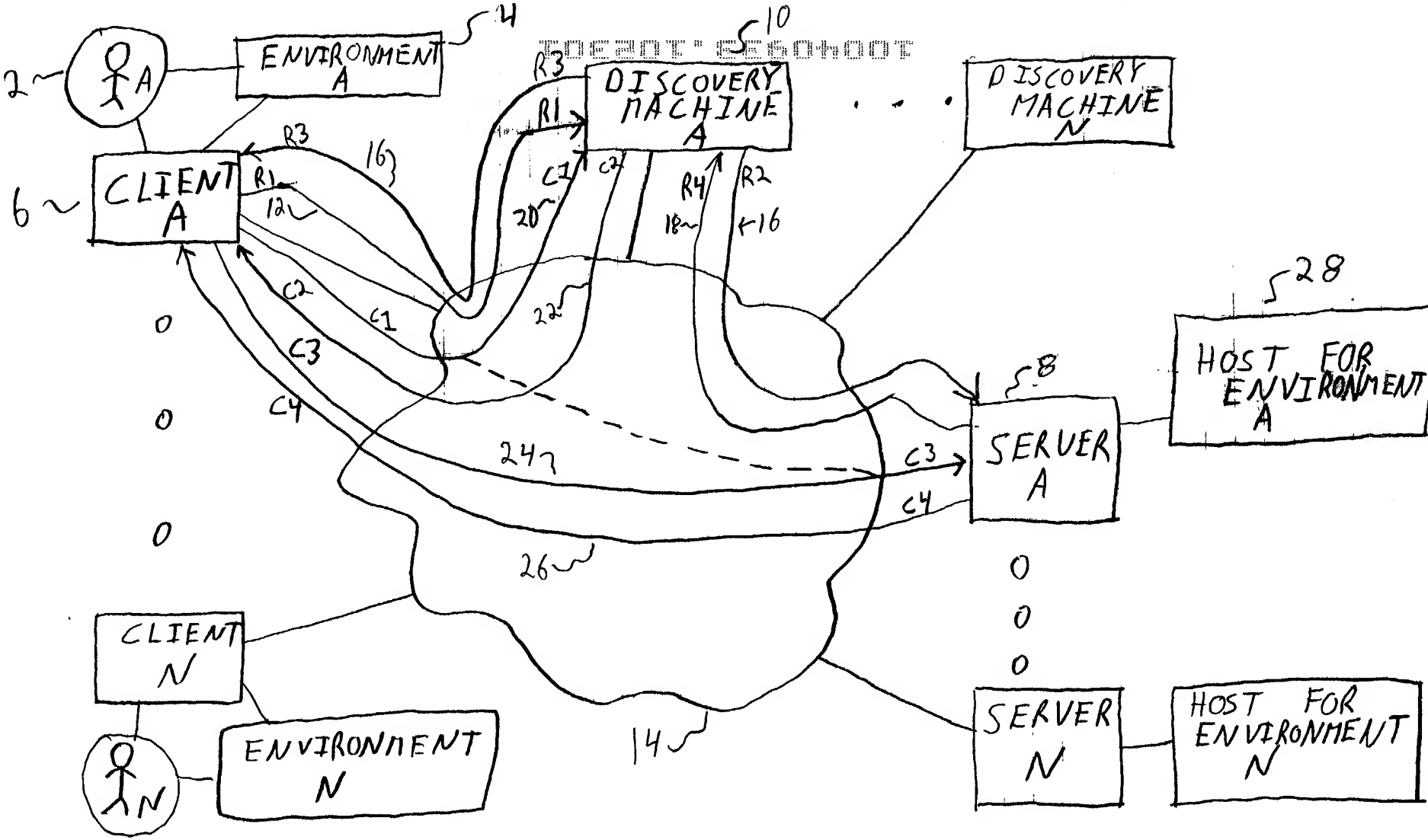
2
A
ENVIRONMENT A
4
10
DISCOVERY MACHINE A
DISCOVERY MACHINE N
R3
R1
6
CLIENT A
R3
16
R1
12
C1
C2
20
R4
R2
18
16
C2
C1
22
C3
C4
28
HOST FOR ENVIRONMENT A
8
SERVER A
24
C3
C4
26
CLIENT N
ENVIRONMENT N
N
14
SERVER N
HOST FOR ENVIRONMENT N

FIGURE 1

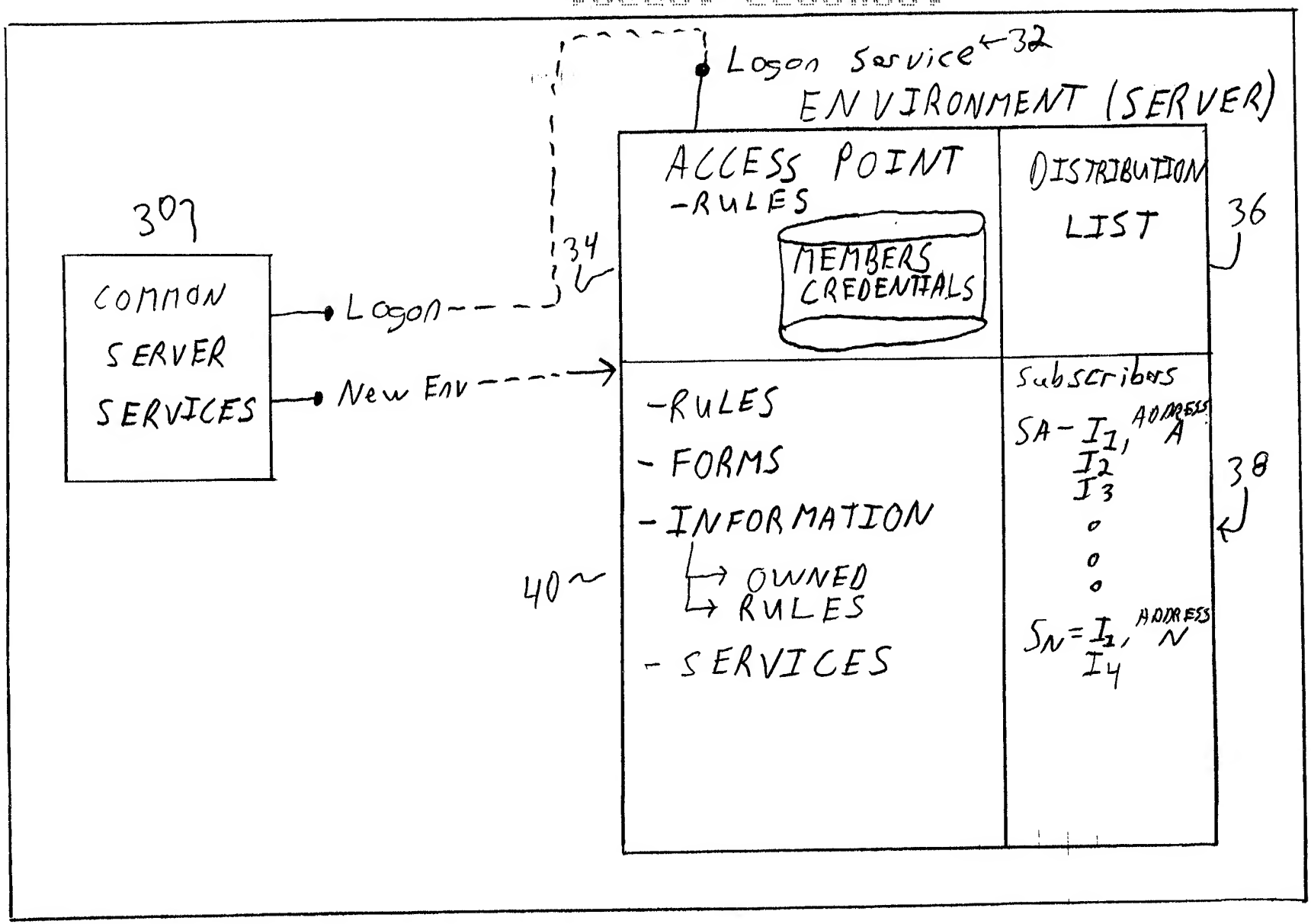
SERVER A
Logon Service
32
ENVIRONMENT (SERVER)
ACCESS POINT
-RULES
MEMBERS CREDENTIALS
DISTRIBUTION LIST
36
30
34
COMMON SERVER SERVICES
Logon
New Env
-RULES
- FORMS
- INFORMATION
OWNED RULES
40
- SERVICES
Subscribers
SA - I1, I2, I3 ADDRESS A
38
SN = I1, I4 ADDRESS N

FIGURE 2

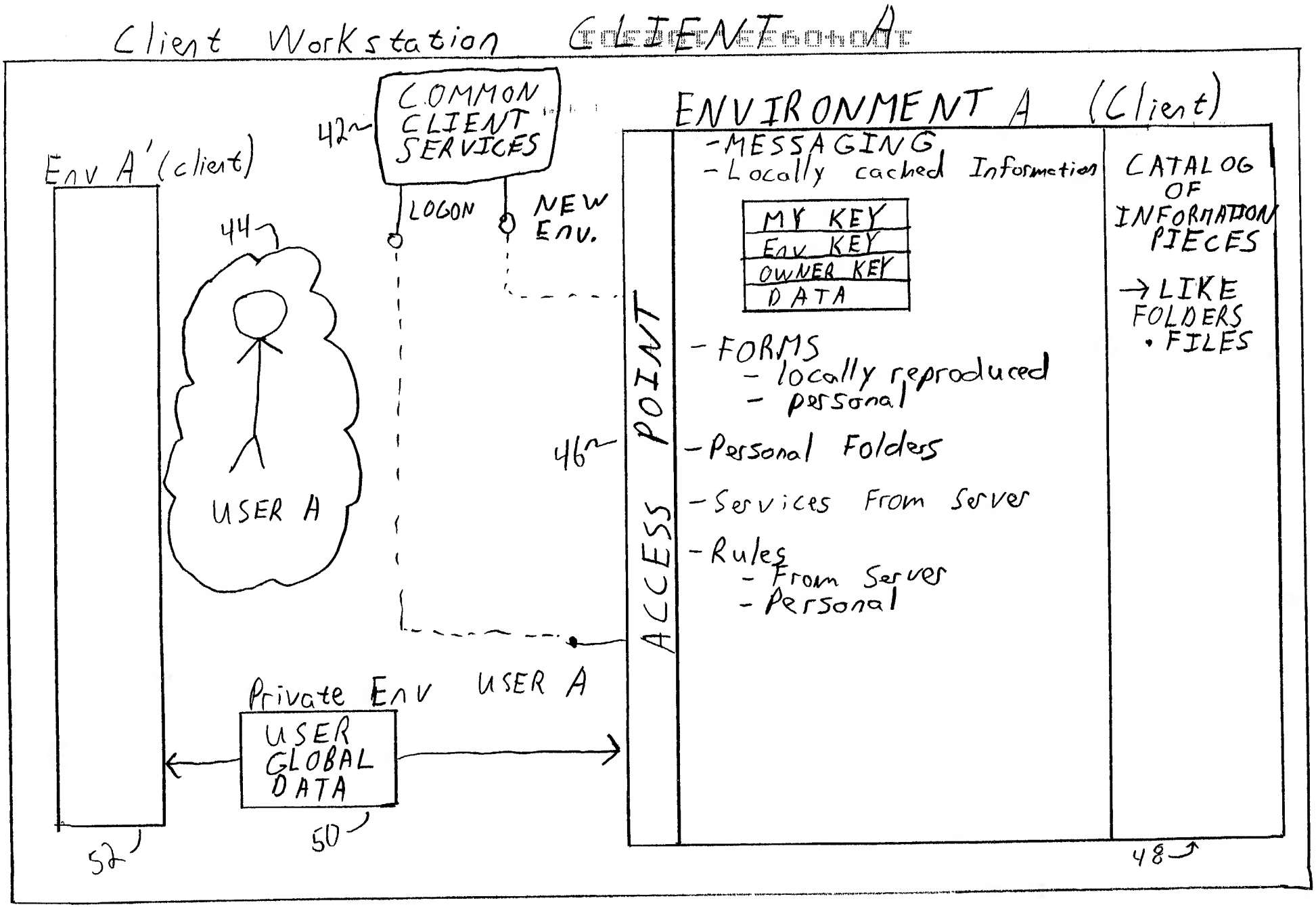
Client Workstation
CLIENT ENVIRONMENT A
COMMON CLIENT SERVICES
42
ENVIRONMENT A (Client)
Env A' (client)
LOGON
NEW Env.
44
-MESSAGING
-Locally cached Information
MY KEY
Env KEY
OWNER KEY
DATA
CATALOG OF INFORMATION PIECES
→ LIKE FOLDERS • FILES
ACCESS POINT
-FORMS
- locally reproduced
- personal
46
-Personal Folders
-Services From Server
-Rules
- From Server
- Personal
USER A
Private Env USER A
USER GLOBAL DATA
50
52
48

FIGURE 3

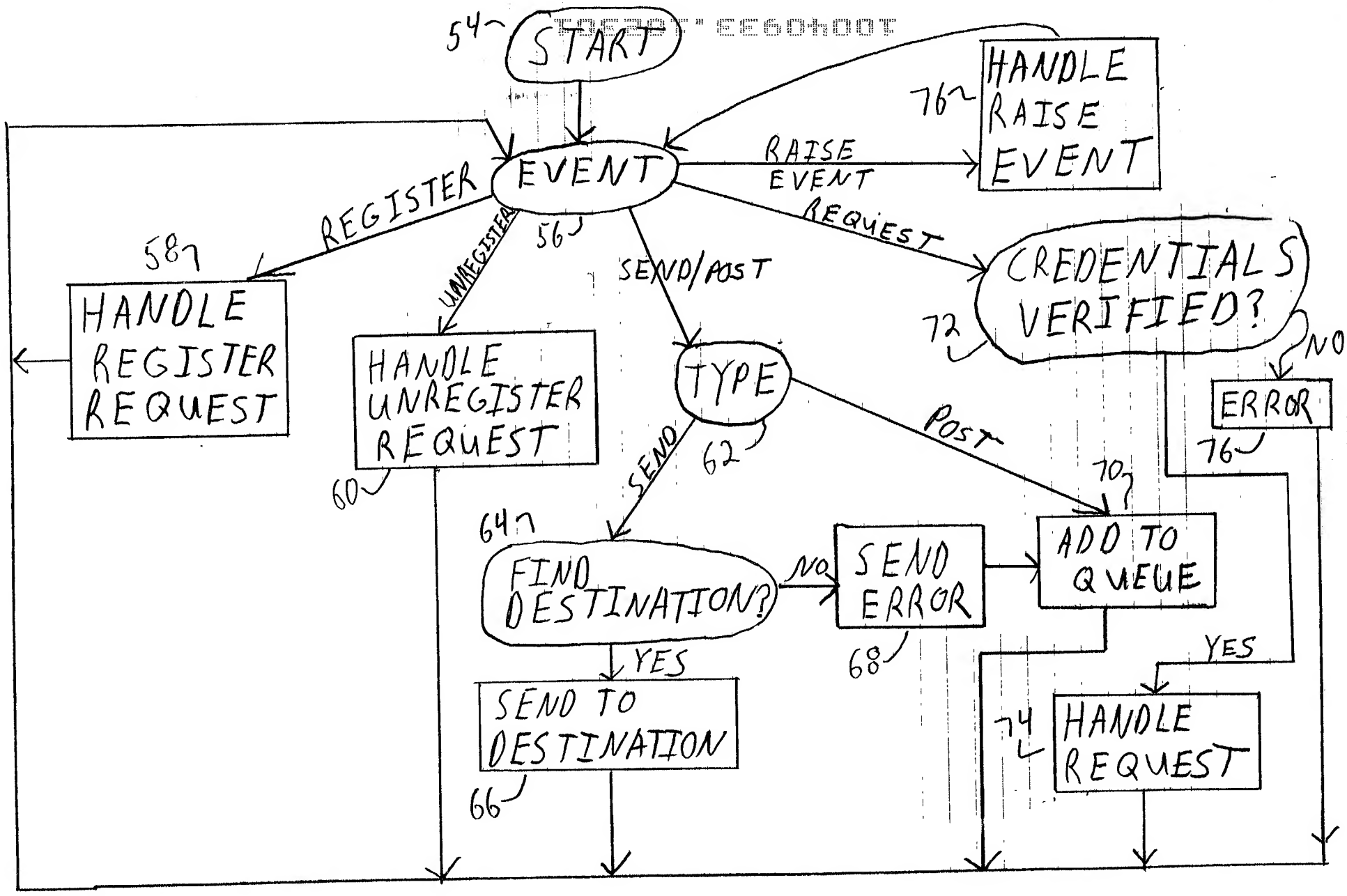
54
START
EVENT
REGISTER
UNREGISTER
SEND/POST
RAISE EVENT
REQUEST
56
58
HANDLE REGISTER REQUEST
HANDLE UNREGISTER REQUEST
60
TYPE
62
SEND
POST
64
FIND DESTINATION?
NO
SEND ERROR
68
YES
SEND TO DESTINATION
66
76
HANDLE RAISE EVENT
CREDENTIALS VERIFIED?
72
NO
ERROR
76
70
ADD TO QUEUE
YES
74
HANDLE REQUEST

FIGURE 4

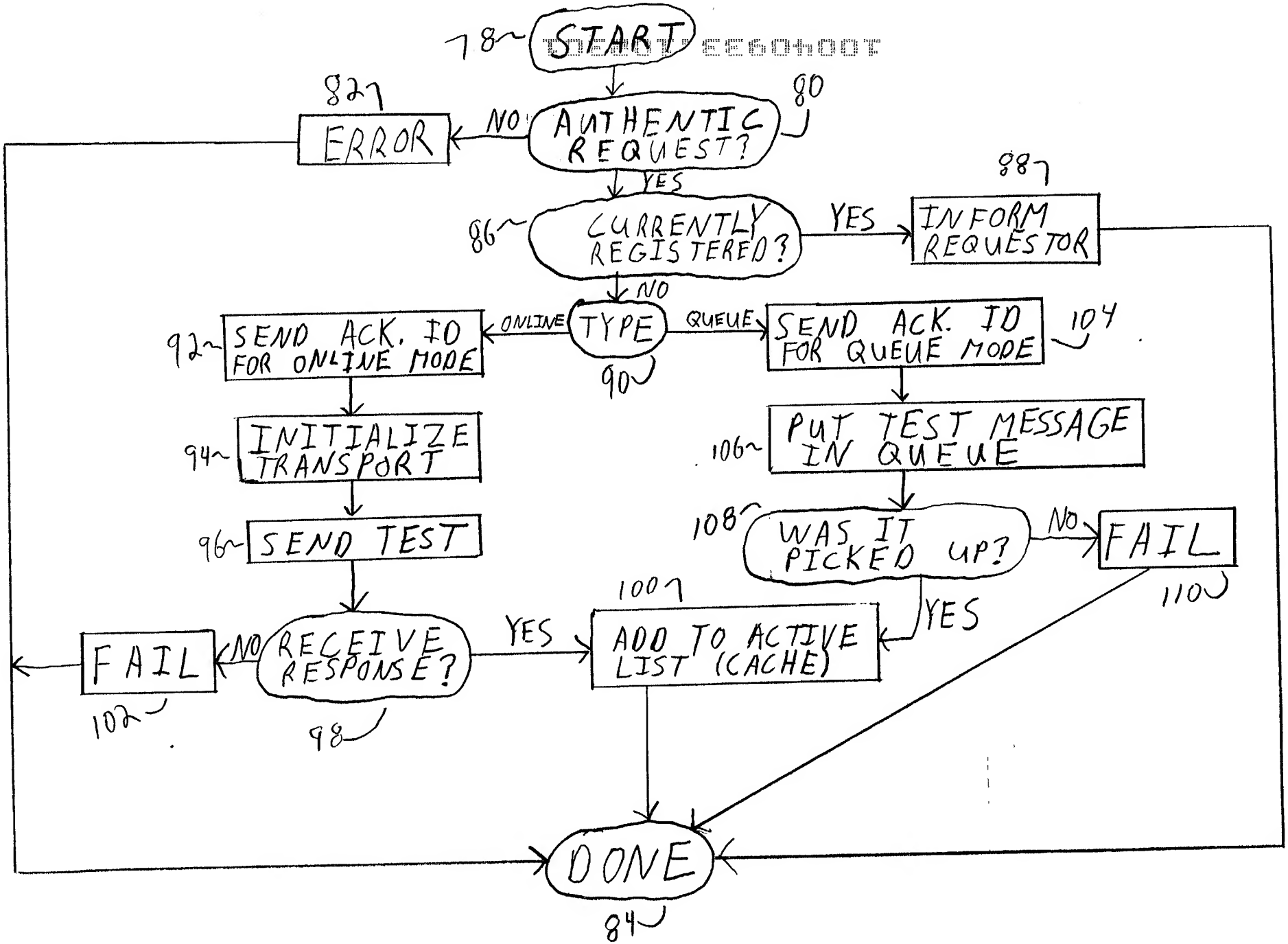
78
START
82
ERROR
NO
AUTHENTIC REQUEST?
80
YES
86
CURRENTLY REGISTERED?
YES
INFORM REQUESTOR
88
NO
ONLINE
TYPE
QUEUE
90
92
SEND ACK. TO FOR ONLINE MODE
SEND ACK. TO FOR QUEUE MODE
104
94
INITIALIZE TRANSPORT
106
PUT TEST MESSAGE IN QUEUE
96
SEND TEST
108
WAS IT PICKED UP?
NO
FAIL
110
100
ADD TO ACTIVE LIST (CACHE)
YES
YES
FAIL
NO
RECEIVE RESPONSE?
102
98
DONE
84

FIGURE 5

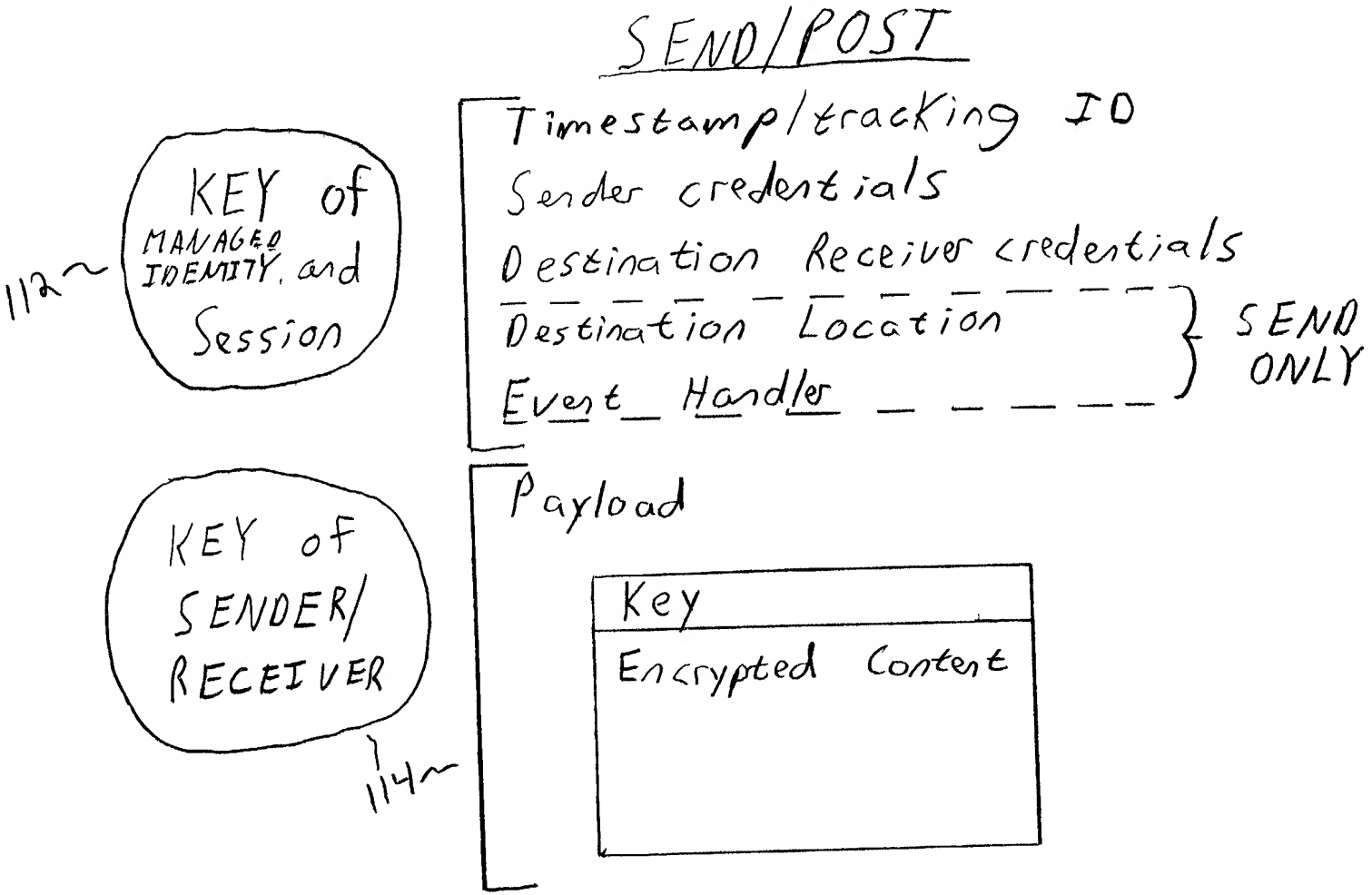
SEND/POST
Timestamp/tracking IO
Sender credentials
Destination Receiver credentials
Destination Location
Event Handler
SEND ONLY
KEY of MANAGED IDENTITY and Session
112
Payload
Key
Encrypted Content
KEY of SENDER/ RECEIVER
114

FIGURE 6

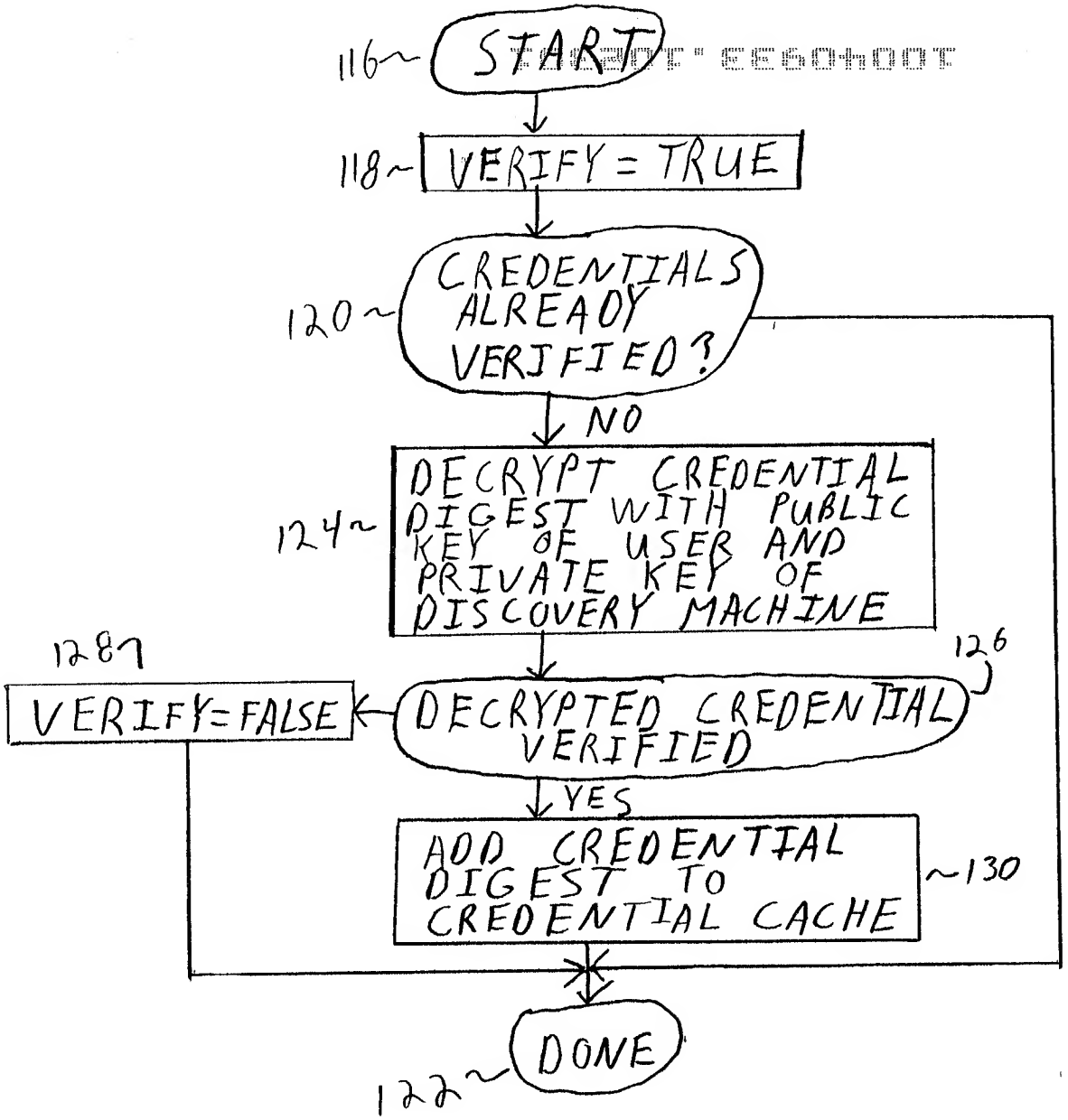
116
START
118
VERIFY = TRUE
120
CREDENTIALS ALREADY VERIFIED?
NO
124
DECRYPT CREDENTIAL DIGEST WITH PUBLIC KEY OF USER AND PRIVATE KEY OF DISCOVERY MACHINE
126
DECRYPTED CREDENTIAL VERIFIED
128
VERIFY=FALSE
YES
ADD CREDENTIAL DIGEST TO CREDENTIAL CACHE
130
DONE
122

FIGURE 7

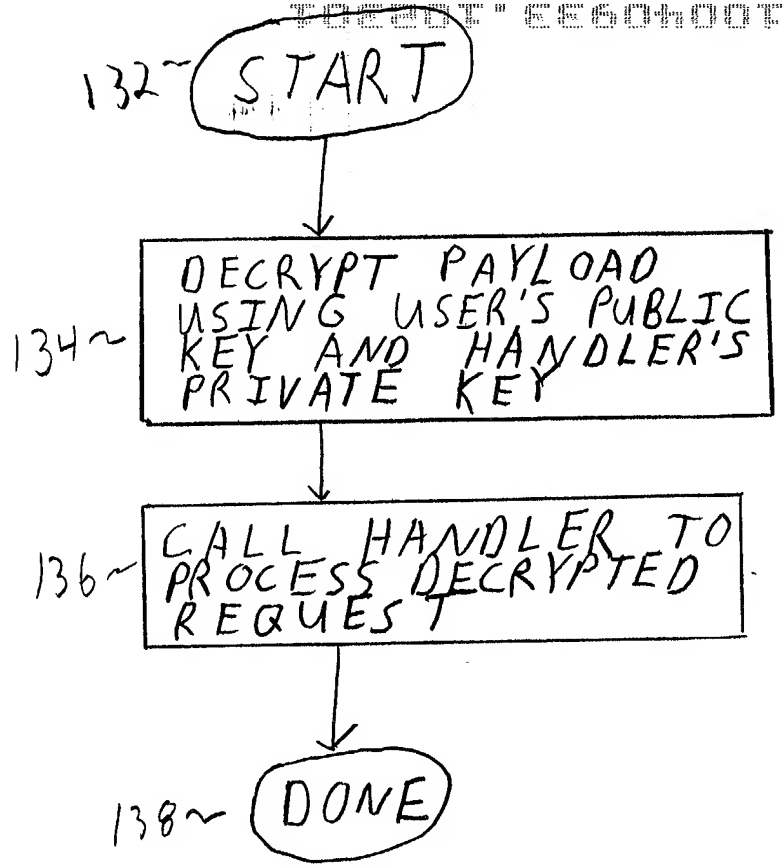
132
START
134
DECRYPT PAYLOAD USING USER'S PUBLIC KEY AND HANDLER'S PRIVATE KEY
136
CALL HANDLER TO PROCESS DECRYPTED REQUEST
138
DONE

FIGURE 8

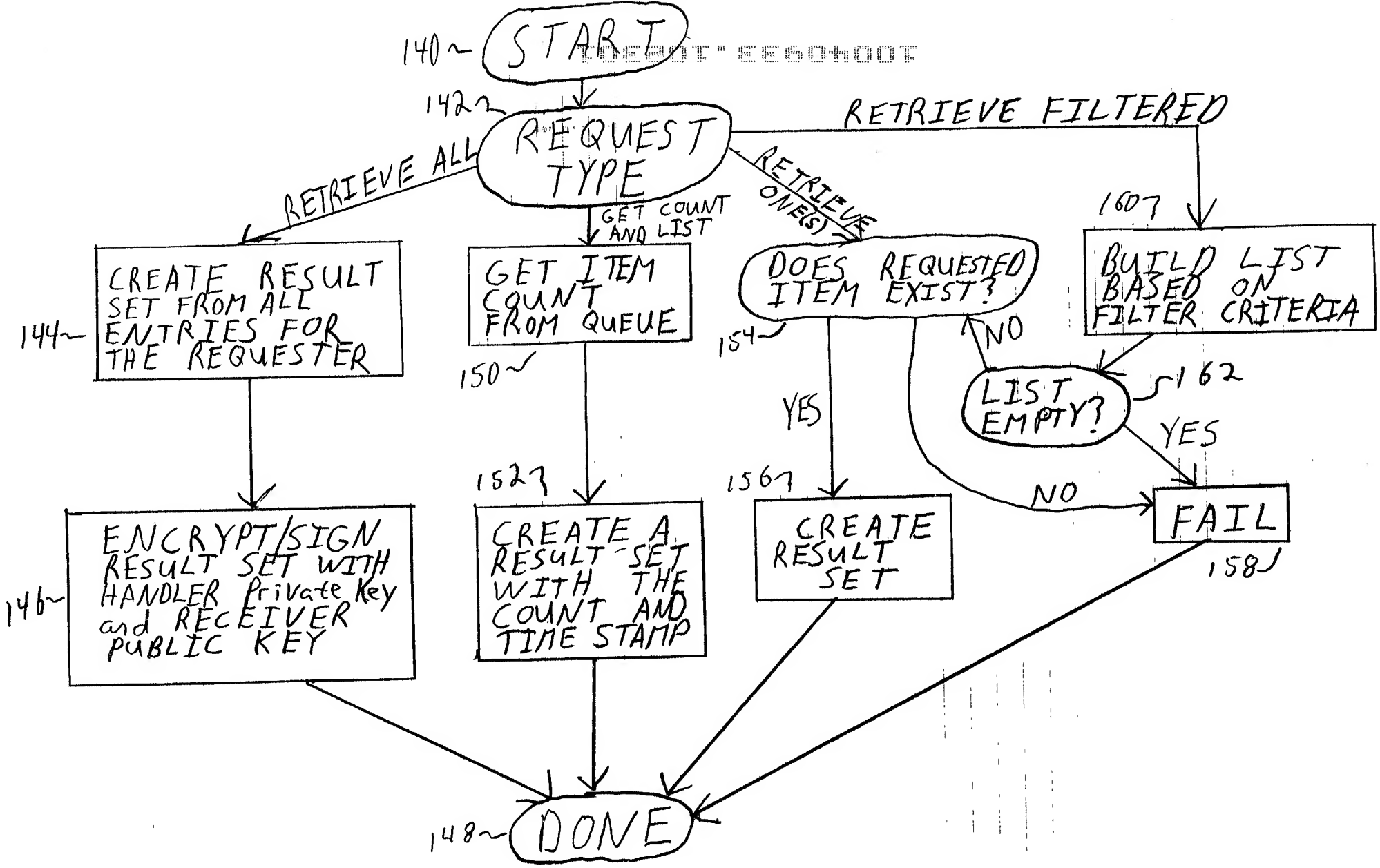
140
START
142
REQUEST TYPE
RETRIEVE ALL
GET COUNT AND LIST
RETRIEVE ONE(S)
RETRIEVE FILTERED
144
CREATE RESULT SET FROM ALL ENTRIES FOR THE REQUESTER
150
GET ITEM COUNT FROM QUEUE
154
DOES REQUESTED ITEM EXIST?
160
BUILD LIST BASED ON FILTER CRITERIA
162
LIST EMPTY?
NO
YES
YES
NO
152
CREATE A RESULT SET WITH THE COUNT AND TIME STAMP
156
CREATE RESULT SET
146
ENCRYPT/SIGN RESULT SET WITH HANDLER Private Key and RECEIVER PUBLIC KEY
158
FAIL
148
DONE

FIGURE 9

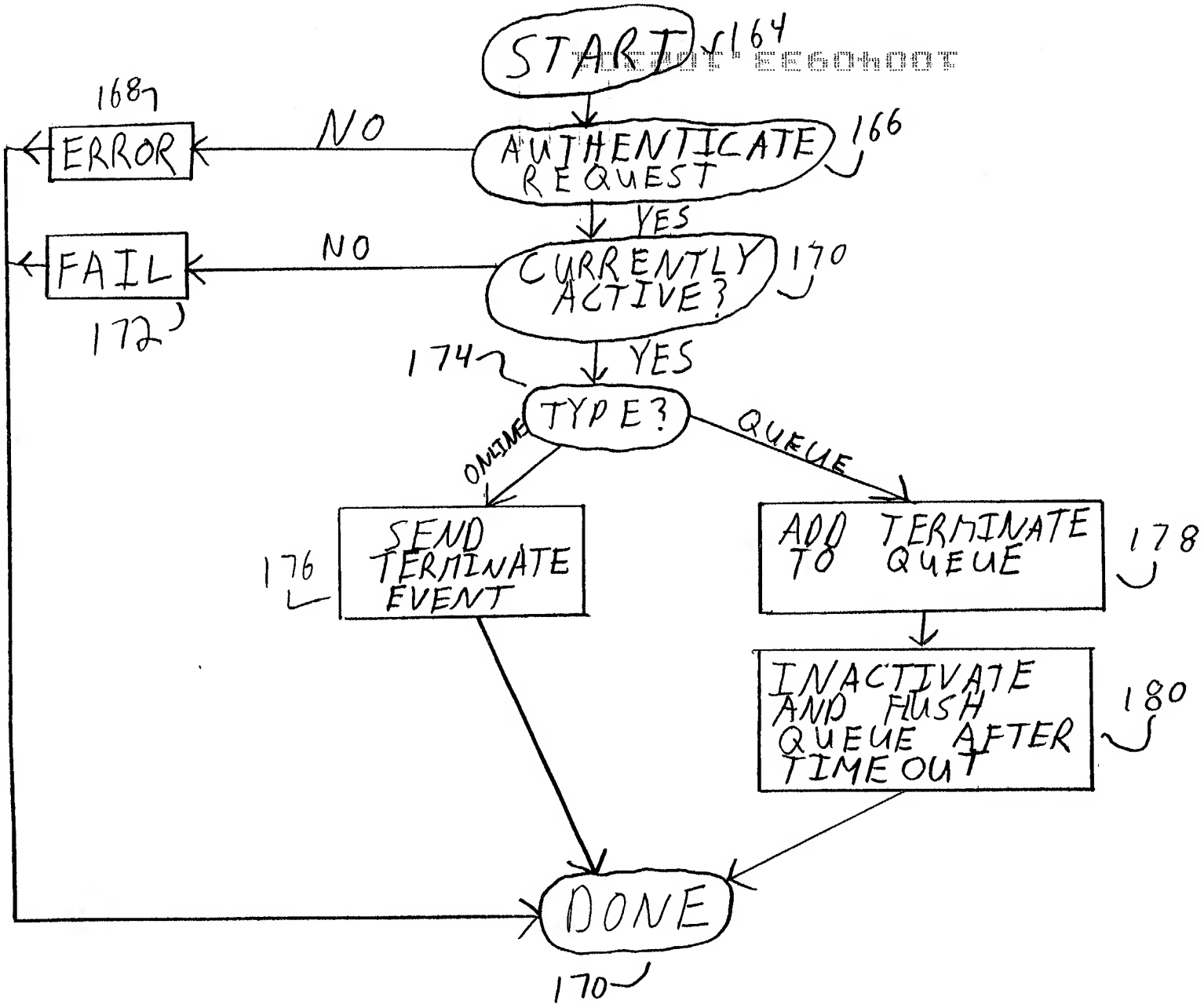
START
164
168
ERROR
NO
AUTHENTICATE REQUEST
166
YES
FAIL
NO
CURRENTLY ACTIVE?
170
172
174
YES
TYPE?
ONLINE
QUEUE
SEND TERMINATE EVENT
176
ADD TERMINATE TO QUEUE
178
INACTIVATE AND FLUSH QUEUE AFTER TIMEOUT
180
DONE
170

FIGURE 10

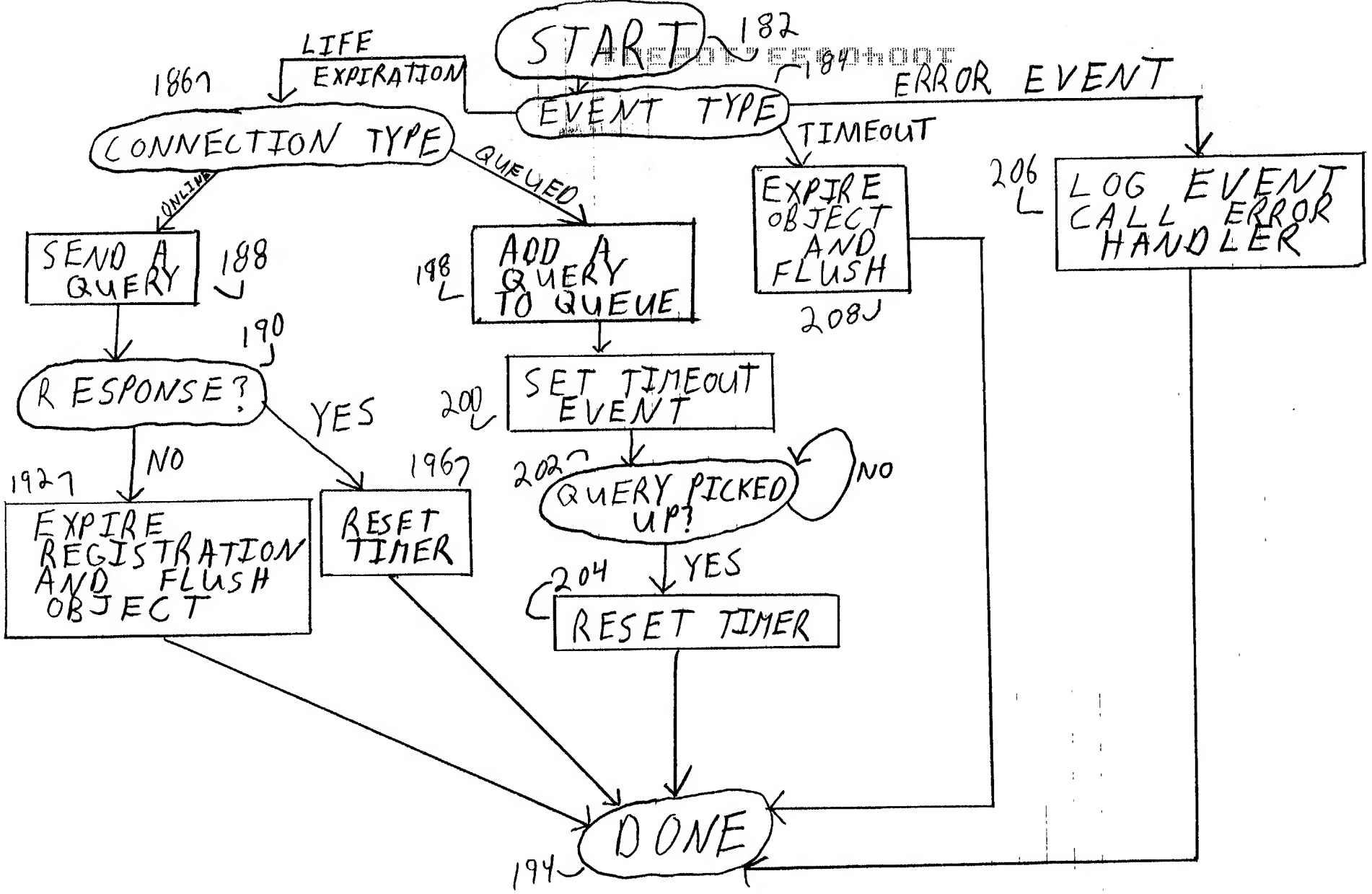
START
182
LIFE EXPIRATION
186
EVENT TYPE
184
ERROR EVENT
CONNECTION TYPE
TIMEOUT
ONLINE
QUEUED
EXPIRE OBJECT AND FLUSH
208
206
LOG EVENT CALL ERROR HANDLER
SEND A QUERY
188
ADD A QUERY TO QUEUE
198
190
RESPONSE?
YES
SET TIMEOUT EVENT
200
NO
192
196
202
QUERY PICKED UP?
NO
EXPIRE REGISTRATION AND FLUSH OBJECT
RESET TIMER
204
YES
RESET TIMER
DONE
194

FIGURE 11

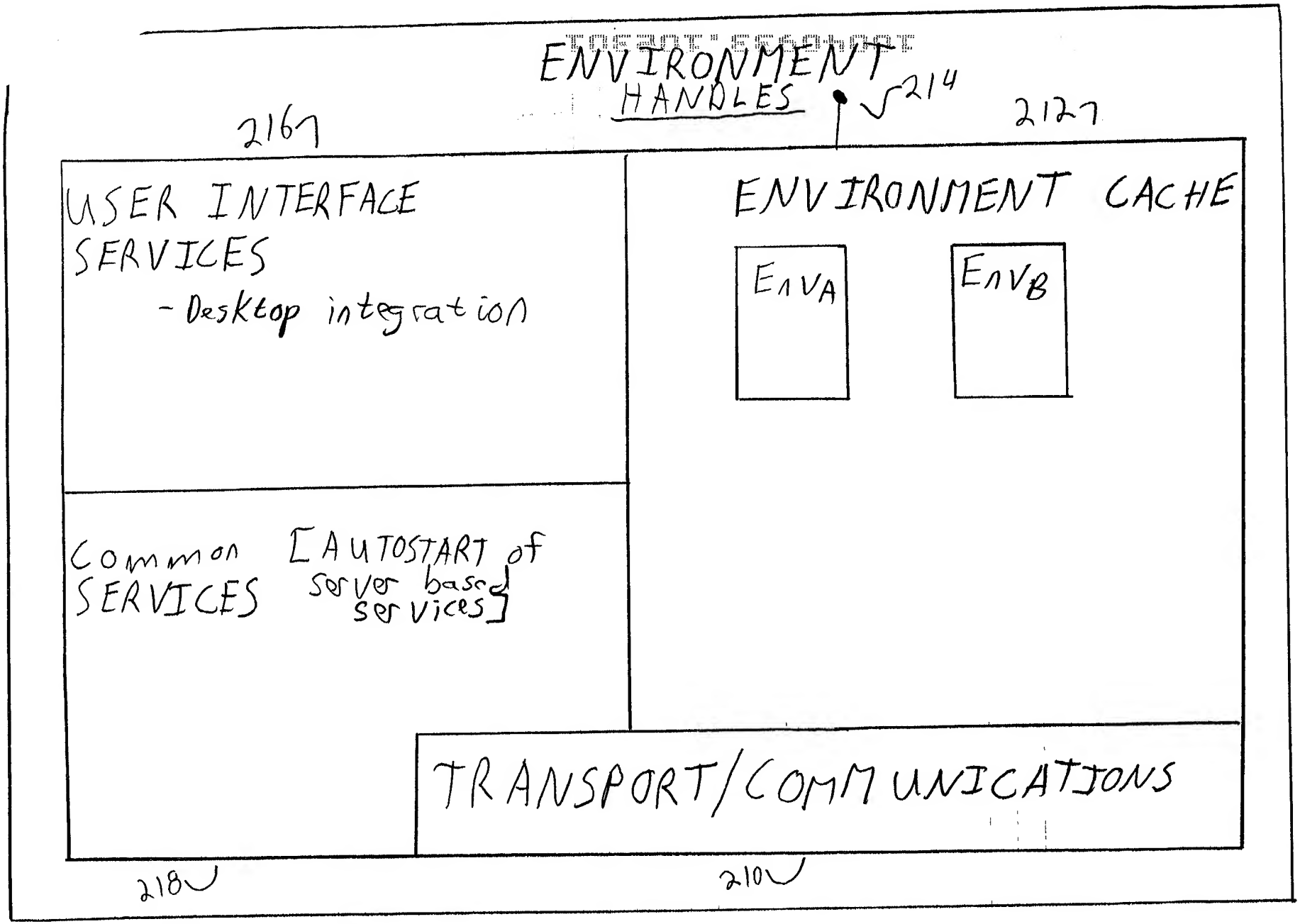

FIGURE 12 "CLIENT AND SERVER ARCHITECTURE"

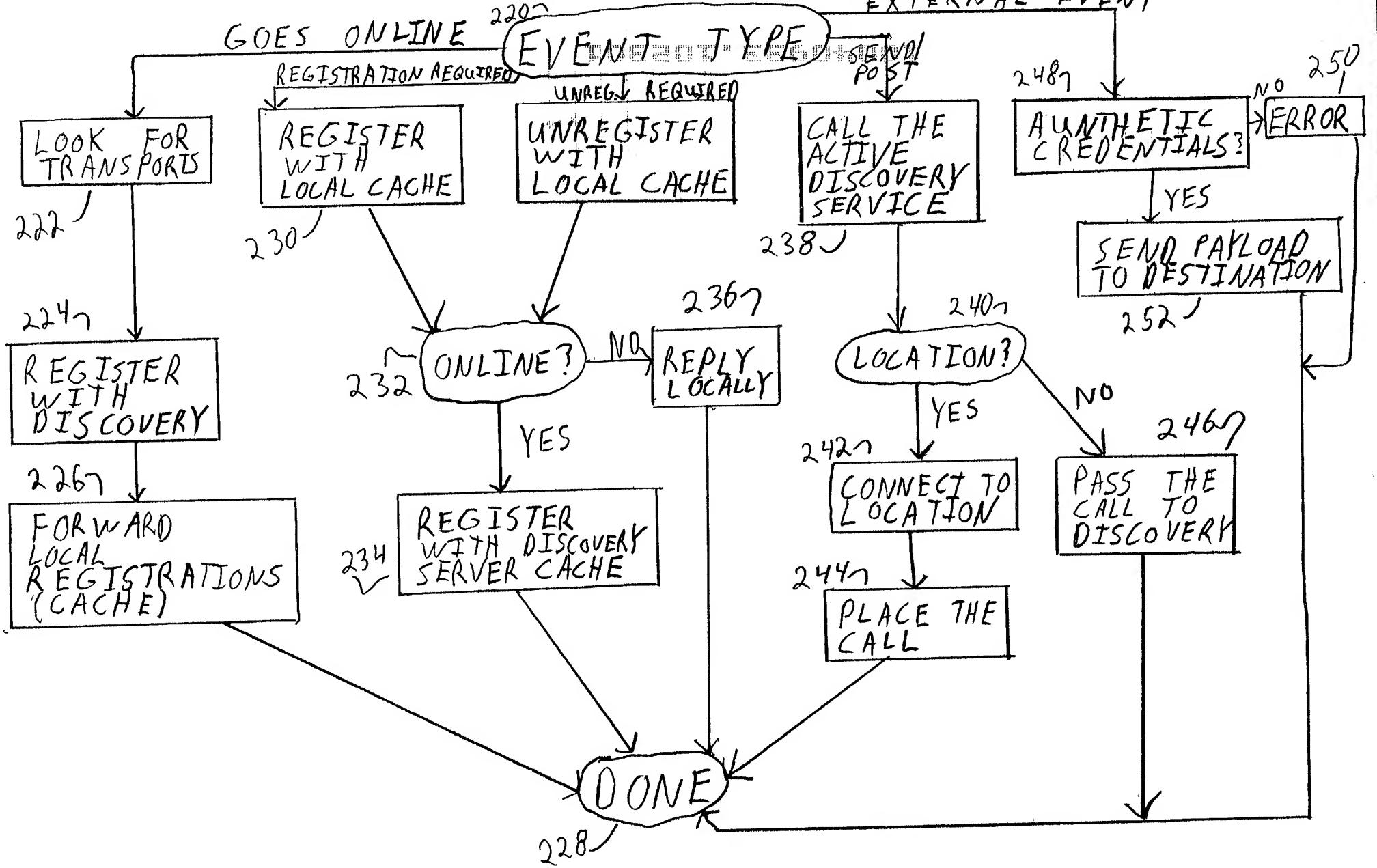
220
EVENT TYPE
GOES ONLINE
REGISTRATION REQUIRED
UNREG. REQUIRED
SEND POST
EXTERNAL EVENT
LOOK FOR TRANSPORTS
222
REGISTER WITH LOCAL CACHE
230
UNREGISTER WITH LOCAL CACHE
CALL THE ACTIVE DISCOVERY SERVICE
238
AUNTHETIC CREDENTIALS?
248
NO
ERROR
250
YES
SEND PAYLOAD TO DESTINATION
252
224
REGISTER WITH DISCOVERY
226
FORWARD LOCAL REGISTRATIONS (CACHE)
ONLINE?
232
NO
REPLY LOCALLY
236
YES
REGISTER WITH DISCOVERY SERVER CACHE
234
LOCATION?
240
YES
NO
CONNECT TO LOCATION
242
PASS THE CALL TO DISCOVERY
246
PLACE THE CALL
244
DONE
228

FIGURE 13

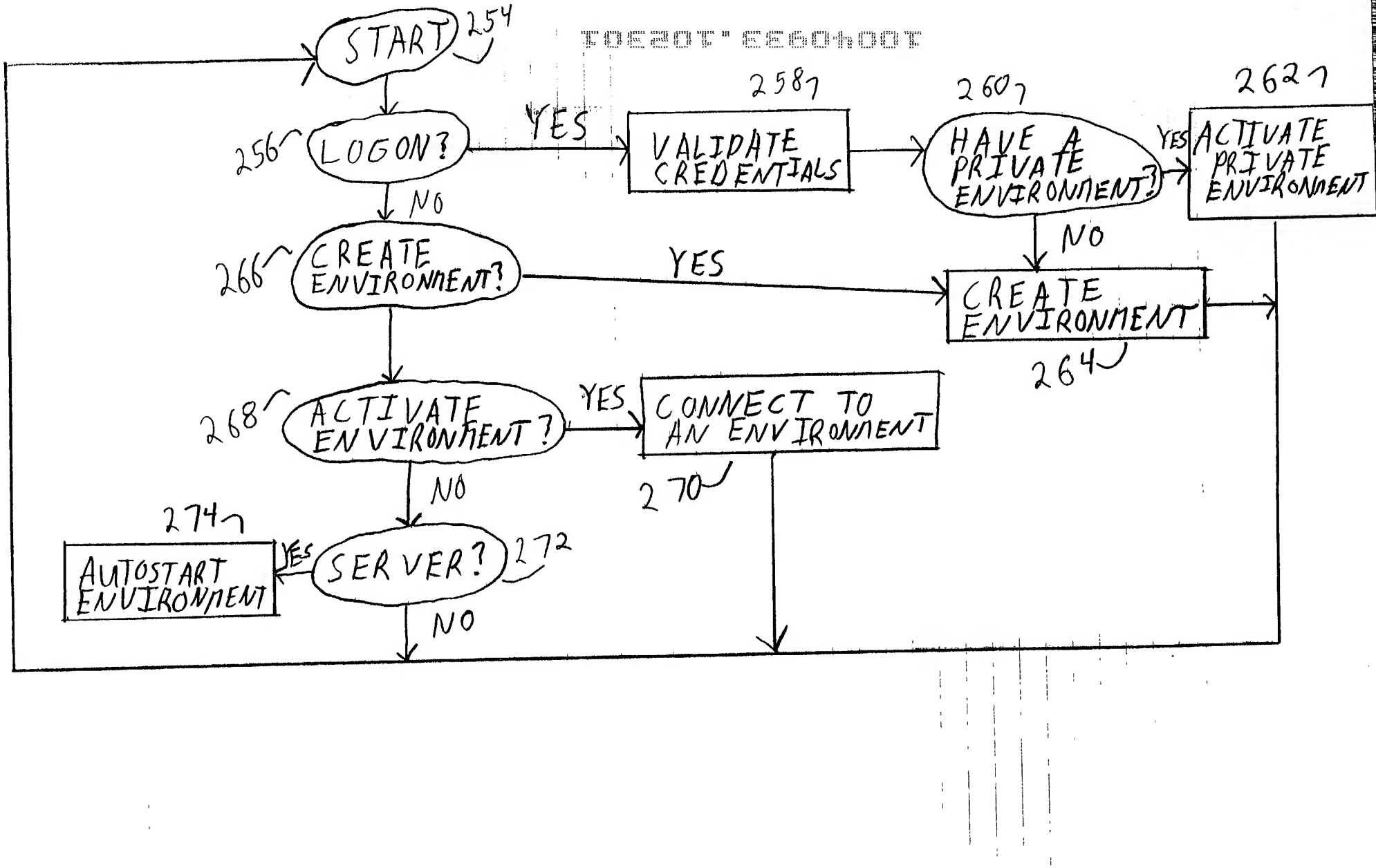
START
254
LOGON?
256
YES
NO
VALIDATE CREDENTIALS
258
HAVE A PRIVATE ENVIRONMENT?
260
YES
ACTIVATE PRIVATE ENVIRONMENT
262
NO
CREATE ENVIRONMENT?
266
YES
CREATE ENVIRONMENT
264
ACTIVATE ENVIRONMENT?
268
YES
CONNECT TO AN ENVIRONMENT
270
NO
SERVER?
272
YES
AUTOSTART ENVIRONMENT
274
NO

FIGURE 14